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EXAMINER	
AUNG, SAN M	

ART UNIT	PAPER NUMBER
3657	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,390	SCHORN ET AL.	
	Examiner	Art Unit	
	SAN AUNG	3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/15/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This communication is a First Office Action Non-Final rejection on the merits. Claims 1-43, as originally filed, are currently pending and have been considered below.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-6, 8, and 11** are rejected under 35 U.S.C. 102(b) as being anticipated by T. M. Nolan (US Patent 3,500,967).

As per claim 1, Nolan discloses Disc Brake Shoe Retention Means comprising:

a brake pad (38) for a disc brake (Figure-1) that can be associated with a caliper (10) with thrust means (46, Figure 2) for clamping said brake pad with friction against a braking band of a brake disc , wherein the brake pad comprises:

a plate (56) with a central portion (Attached figure) provided with a layer of friction material (58), said central portion having an upper edge (Attached figure) and an opposed lower edge (Attached figure) and also two lateral edges (Attached figure);

two support appendages (61) which extend from said lateral edges (Figure 5) of the central portion each of said support appendages bounding an eye (61) capable of receiving a pin of the caliper

wherein said upper edge and lower edge extend substantially along circumferences of a circle imparting an arcuate shape to the central portion (Attached

figure and figure 5), and said support appendages are disposed substantially at the height of said lower edge of said brake pad (attached figure and figure 5).

As per claim 2, Nolan discloses said central portion (Attached figure) forms together with the support appendages an Omega "Ω"-shaped structure.

As per claim 3, Nolan discloses the lateral edges (Attached figure) are substantially rectilinear, parallel and perpendicular to a direction tangential to said upper edge at a point halfway between said lateral edges (Attached figure and figure 5).

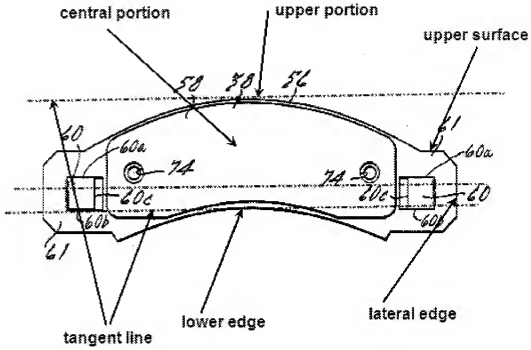
As per claim 4, Nolan discloses the support appendages (61) extend substantially perpendicularly to the lateral edges (Attached figure and figure 5).

As per claim 5, Nolan discloses each of the support appendages (61) comprises an upper surface (Attached figure) facing in the same direction as the upper edge and capable of constituting a bearing surface for a brake pad spring element (70, Figures 1 and 3).

As per claim 6, Nolan discloses said upper surfaces (Attached figure) are substantially flat and parallel to the direction tangential to the upper edge at a point halfway between the lateral edges (Attached figure and figure 5).

As per claim 8, Nolan discloses the eyes (60) are disposed substantially on a tangent to the lower edge at a point halfway between the lateral edges (Attached figure and figure 5).

As per claim 11, Nolan discloses said brake pads having a symmetrical shape (Attached figure and figure 5).



3. **Claims 12-14, 20-21, and 25** are rejected under 35 U.S.C. 102(b) as being anticipated by Fujimori et al. (US Patent 4,214,649).

As per claim 12, Fujimori discloses Antirattle Spring for a Disc Brake of Vehicle comprising:

a caliper (13) for a disc brake comprising thrust means for clamping at least two brake pads (20, 23) with friction against a braking band of a brake disc (Figure 2), wherein said caliper comprises at least two seats (11a, Figure 1) receiving said brake pads, each of said seats comprising:

a central space (10, Attached figure and figure 3) bounded by a connecting member which connects the two lateral walls of the caliper and a lower edge (Attached figure) of the lateral wall opposed to the aforesaid connecting member (Figures 1 and 3), and also, laterally, by two containment walls (11, Figures 1 and 3)

two outer spaces (Attached figure) which extend laterally from the central space (Attached figure), there being arranged in each of said outer spaces a pin (13C) capable of engaging a respective eye of said brake pad (Figure 1),

wherein both the connecting member and the lower edge extend along circumferences of a circle, imparting an arcuate shape to the central space and said outer spaces are disposed substantially at the height of said lower edge of the caliper (Figures 1 and 3).

As per claim 13, Fujimori discloses said seat formed by the arcuate central space together with the outer spaces has a substantially Omega "Ω"-shape.

As per claim 14, Fujimori discloses the seats (11a) at the lower edge are open towards the outside of the caliper (13, Figure 1) and devoid of opposing or bearing surfaces which may prevent displacement of the brake pad (Figures 1 and 3).

As per claim 20, Fujimori discloses said pins (13C) are obtained separately from the caliper (13) and then connected thereto (Figure 1).

As per claim 21, Fujimori discloses the longitudinal axes of the two pins (13C) of each seat lie approximately in a plane tangent to the lower edge of the respective lateral wall at a point halfway between the two containment walls (Attached figure and figure 1 showed that middle of the pin lies approximately between lower edge and the lateral wall).

As per claim 25, Fujimori discloses said caliper is a fixed caliper (Column 2, Lines 59-64, caliper is prevented from rattling, Figures 1-3).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over T. M. Nolan (US Patent 3,500,967) as applied to claim 1 above, and further in view of Melinat (US Patent 4,373,615).

As per claim 7, Nolan discloses said eye (60) are substantially rectangular shape (Figure 5) but silent about rectangular shape with the comers rounded or chamfered.

Melinat discloses Laminated Disc Brake Pad Assembly comprising

Brake pad with a substantially rectangular shape with the comers rounded or chamfered (40, 42, Column 2, Lines 52-56, Figure 2).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the brake pad of the Nolan to make the pad retaining holes which is substantially rectangular shape with the comers rounded or chamfered as taught by Melinat in order to provide easy to install the brake pad to the caliper and eliminates a possible noise path from the friction lining through the first metal plate shoe and the pins into the caliper.

6. **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over T. M. Nolan (US Patent 3,500,967) as applied to claim 1 above, and further in view of Moriya (US Patent 4,245,723).

As per claim 9, Nolan discloses all the structural elements of the claimed invention but fails to explicitly disclose from each of the lateral edges there extends near the upper edge a protuberance which forms a prolongation of the upper edge outside the central portion, said protuberances comprising a bearing surface which constitutes an opposing surface for a brake pad spring element.

Moriya discloses Disc Brake Apparatus for a Motor Vehicle comprising:

the brake pad comprising each of the lateral edges there extends near the upper edge (23) a protuberance (24) which forms a prolongation of the upper edge outside the central portion, said protuberances comprising a bearing surface (Figure 2) which constitutes an opposing surface for a brake pad spring element (30, Figure 2).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the brake pad of the Nolan to make the lateral edges there extends near the upper edge a protuberance which forms a prolongation of the upper edge outside the central portion, said protuberances comprising a bearing surface which constitutes an opposing surface for a brake pad spring element as taught by Moriya in order to provide an additional force to press the brake pad assembly in a rotating direction of the disc.

As per claim 10, Nolan discloses all the structural elements of the claimed invention but fails to explicitly disclose said bearing surfaces are inclined with respect to

the tangents and to the upper edge and lower edge of the central portion, so as to allow the brake pad spring elements abutting on them to exert a resilient thrust towards the central portion.

Moriya discloses said bearing surfaces 04?0-are inclined with respect to the tangents and to the upper edge and lower edge of the central portion, so as to allow the brake pad spring elements abutting on them to exert a resilient thrust towards the central portion (Figure 2).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the brake pad of the Nolan to make bearing surfaces which are inclined with respect to the tangents and to the upper edge and lower edge of the central portion, so as to allow the brake pad spring elements abutting on them to exert a resilient thrust towards the central portion as taught by Moriya in order to provide an additional force to press the brake pad assembly in a rotating direction of the disc.

7. **Claims 15-19, 22-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimori et al. (US Patent 4,214,649).

As per claim 15, Fujimori discloses each of said containment walls constitutes a seat for a brake pad spring element and has an upper surface facing radially outwards with respect to the axis of rotation of the brake disc (Figures 1 and 3) but fails to disclose that the upper surface inclined towards the inside of the central space.

Fujimori discloses the claimed invention except for the upper surface inclined towards the inside of the central space. It would have been obvious to one ordinary skill in the art at the time the invention was made to the upper surface inclined towards the

inside of the central space, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

As per claim 16, Fujimori discloses the upper surfaces (11) are substantially flat and lie in planes which intersect the lower edge (Attached figure) at a point halfway between the two containment walls (Attached figure and figure 1).

As per claim 17, Fujimori discloses each of said containment walls (11) has a lower surface disposed on the side of the containment walls opposed to the upper surfaces (Attached figure) and facing in the same direction as the lower edge of the lateral wall (Attached figure and figures 1 and 3).

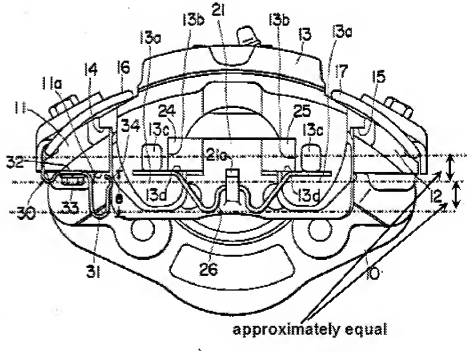
As per claim 18, Fujimori discloses the lower surfaces (Attached figure) are substantially fiat and extend in a direction parallel to the directions tangential to the connecting member and to the lower edge at a point halfway between the containment walls (Attached figure and figures 1 and 3).

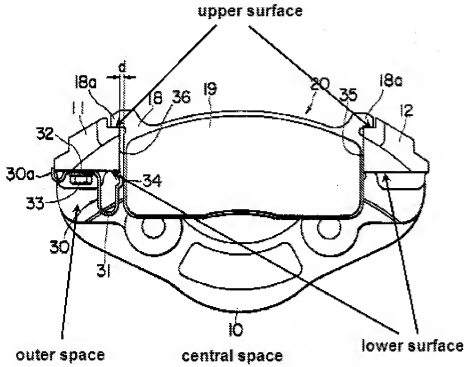
As per claim 19, Fujimori discloses said lower surfaces (Attached figure) of the containment walls (11) bound at the top said outer space containing the pins (13C, Figures 1 and 3).

As per claim 22, Fujimori discloses from said upper surfaces (Attached figure) of the containment walls (11) a stop tooth (12) protrudes which is capable of engaging a suitable recess of the brake pad spring element ~ to secure the latter on the containment wall (Attached figure and figures 1 and 3).

As per claim 23, Fujimori discloses said stop tooth (12) is spaced from the surface of the seat (11a) so as to delimit between the latter and the stop tooth (12) a passage for the brake pad spring element (Attached figure and figures 1 and 3).

As per claim 24 discloses each of the lower surfaces (Attached figure) of the containment walls has a recess capable of receiving a protuberance of said brake pad spring element (Fujimori showed in figures 1-3, the spring element (30) is attached to the lower surface with screw 33, inherently conclude that lower surface of the containment walls has a recess to receive the bolt 33).





8. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimori et al. (US Patent 4,214, 649) and further in view of T. M. Nolan (US Patent 3,500,967).

Claim 26 recites the genus of the same limitation of **claims 1 and 12** and is therefore rejected under the same rationale.

9. **Claims 27-43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimori et al. (US Patent 4,214,649) as modified by (T. M. Nolan (UD Patent 3,500,967) as applied to claim 26 above, and further in view of Melinat (US Patent 4,373,615), Souma (US Patent 4,181,200), and Moriya (US Patent 4,245,723).

As per claim 27, Fujimori as modified by Nolan discloses all the structural elements of the claimed invention but fails to explicitly disclose the chamfering radius of

the eyes is less than the radius of the cylindrical pins so that the mutual bearing between the pin and the chamfered comer of the eye occurs at two points of contact.

Melinat discloses Laminated Disc Brake Pad Assembly comprising the chamfering radius of the eyes (40, 42) is less than the radius of the cylindrical pins (Figure 2) so that the mutual bearing between the pin and the chamfered comer of the eye occurs at two points of contact 9Figure 2).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan to include the chamfering radius of the eyes is less than the radius of the cylindrical pins so that the mutual bearing between the pin and the chamfered comer of the eye occurs at two points of contact as taught by Melinat Moriya in order to provide an additional force to press the brake pad assembly in a rotating direction of the disc.

As per claim 28, Fujimori as modified by Nolan discloses all the structural elements of the claimed invention but fails to explicitly disclose the material of the plate of the brake pad is suitable for undergoing plastic deformation within certain limits, such as to adapt the shape of the eye in the region of contact with the pin of the caliper exactly to the shape of the pin.

Melinat discloses Laminated Disc Brake Pad Assembly comprising the material of the plate of the brake pad is suitable for undergoing plastic deformation within certain limits, such as to adapt the shape of the eye in the region of contact with the pin of the caliper exactly to the shape of the pin (Figure 2).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan to include the plate of the brake pad is suitable for undergoing plastic deformation within certain limits, such as to adapt the shape of the eye in the region of contact with the pin of the caliper exactly to the shape of the pin as taught by Melinat Moriya in order to provide an additional force to press the brake pad assembly in a rotating direction of the disc.

As per claim 29, Fujimori disclose equipped with one or more brake pad spring elements, wherein each of said spring elements (30) comprises an elongate plate of resilient material, which plate is bent so as to form a "C"-shaped base, preferably rectangular or trapezoidal, or alternatively arcuate, said base being capable of tightening resiliently about said containment wall of the caliper (Figures 1 and 3).

As per claim 30, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the base of the brake pad spring element is in the shape of a trapezium open along the major base and shaped so as to be substantially complementary to the shape of the containment wall.

Souma discloses Anti-Rattle and Positioning Member for a Disc Brake comprising:

the base (15) of the brake pad spring element is in the shape of a trapezium open along the major base (Figure 3) and shaped so as to be substantially complementary to the shape of the containment wall (Figure 1).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to include the brake pad spring element which is the shape of a trapezium open along the major base and shaped so as to be substantially complementary to the shape of the containment wall as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 31, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose an upper section of said base has a recess capable of receiving a tooth formed on the containment wall of the caliper.

Souma discloses an upper section of said base has a recess (15a, 15b) capable of receiving a tooth formed on the containment wall of the caliper 9Figure 1).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the an upper section of said base has a recess capable of receiving a tooth formed on the containment wall of the caliper as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 32, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose said recess is formed by a notch transverse to the length of the plate which involves only a part of the

width of the plate so that a bridge remains which ensures the structural continuity of the spring element in the region of the recess.

Souma discloses said recess (15a, 15b) is formed by a notch transverse to the length of the plate (Figure 3) which involves only a part of the width of the plate so that a bridge (15c) remains which ensures the structural continuity of the spring element in the region of the recess (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the recess is formed by a notch transverse to the length of the plate which involves only a part of the width of the plate so that a bridge remains which ensures the structural continuity of the spring element in the region of the recess as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 33, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose at the two opposed sides of the recess two limbs are formed which are bent back so as to constitute opposing walls capable of bearing from two opposed sides against said tooth of the caliper, while the bridge can be positioned in a space between the tooth and the lateral wall of the caliper.

Souma discloses at the two opposed sides of the recess (15a, 15b) two limbs are formed which are bent back so as to constitute opposing walls (Figure 3) capable of bearing from two opposed sides against said tooth of the caliper, while the bridge can

be positioned in a space between the tooth and the lateral wall of the caliper (Figures 1 and 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the two opposed sides of the recess two limbs are formed which are bent back so as to constitute opposing walls capable of bearing from two opposed sides against said tooth of the caliper, while the bridge can be positioned in a space between the tooth and the lateral wall of the caliper as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 34, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose a lower section of said base has a protuberance capable of engaging a recess provided in the containment wall of the caliper.

Souma discloses a lower section of said base (Figure 3) has a protuberance (15b) capable of engaging a recess provided in the containment wall of the caliper (Figures 1 and 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the lower section of said base has a protuberance capable of engaging a recess provided in the containment wall of the caliper as taught by

Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 35, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the protuberance of the spring element has been obtained by means of local deformation of the plate, for example by means of punching or shearing and bending.

Souma discloses the protuberance of the spring element has been obtained by means of local deformation of the plate (Figure 3), for example by means of punching or shearing and bending (figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the protuberance of the spring element has been obtained by means of local deformation of the plate, for example by means of punching or shearing and bending as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 36, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the protuberance is formed by a limb of the spring element bent back towards the inside of the base.

Souma discloses the protuberance is formed by a limb of the spring element bent back towards the inside of the base (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the limb of the spring element bent back towards the inside of the base as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 37, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose from the upper side and lower side of the base of the spring element there extend respective pressure sections, upper and lower, capable of biasing the brake pad resiliently so as to hold it in its position in the seat.

Souma discloses from the upper side and lower side of the base of the spring element (15) there extend respective pressure sections, upper and lower (Figure 3), capable of biasing the brake pad resiliently so as to hold it in its position in the seat (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the upper side and lower side of the base of the spring element there extend respective pressure sections, upper and lower, capable of biasing the brake pad resiliently so as to hold it in its position in the seat as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 38, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the upper pressure section and lower pressure section are bent back with respect to the adjacent upper side and lower side of the base and extend in a direction substantially opposed to these latter.

Souma discloses the upper pressure section (15e) and lower pressure section (15d) are bent back with respect to the adjacent upper side and lower side of the base and extend in a direction substantially opposed to these latter (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the upper pressure section and lower pressure section are bent back with respect to the adjacent upper side and lower side of the base and extend in a direction substantially opposed to these latter as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 39, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the upper pressure section and lower pressure section are oriented towards the closed side of the base.

Souma discloses the upper pressure section (15e) and lower pressure section (15d) are oriented towards the closed side of the base (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the upper pressure section and lower pressure section are oriented towards the closed side of the base as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 40, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose each pressure section of the spring element forms together with the adjacent lateral section of the base a resilient arc, the elastic deformation of which is capable of forming, with the spring element mounted, a resilient bias acting on the brake pad.

Souma discloses each pressure section of the spring element (15e, 15d) forms together with the adjacent lateral section (15c) of the base a resilient arc (Figure 3), the elastic deformation of which is capable of forming, with the spring element mounted, a resilient bias acting on the brake pad (Figures 1 and 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the each pressure section of the spring element forms together with the adjacent lateral section of the base a resilient arc, the elastic deformation of which is capable of forming, with the spring element mounted, a resilient bias acting on the brake pad as taught by Souma in order to provide a disc brake,

where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 41, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the brake pad spring element has an overall shape similar to the letter "ς" (lower case Greek letter *zeta)* or to its mirror image.

Souma discloses the brake pad spring element has an overall shape similar to the letter "ς" (lower case Greek letter *zeta)* or to its mirror image (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the brake pad spring element has an overall shape similar to the letter "ς" (lower case Greek letter *zeta)* or to its mirror image as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 42, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose the brake pad spring element has an overall shape similar to the letter "Σ" (upper case Greek letter *Sigma)* or to its mirror image.

Souma discloses the brake pad spring element has an overall shape similar to the letter "Σ" (upper case Greek letter *Sigma)* or to its mirror image (Figure 3).

Souma discloses the brake pad spring element has an overall shape similar to the letter "Σ" (upper case Greek letter *Sigma)* or to its mirror image (Figure 3).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the brake pad spring element has an overall shape similar to the letter "Σ" (upper case Greek letter *Sigma)* or to its mirror image as taught by Souma in order to provide a disc brake, where in a pad can be properly position in relation to a pad retaining member or stationary member.

As per claim 43, Fujimori as modified by Nolan and Melinat discloses all the structural elements of the claimed invention but fails to explicitly disclose each seat of the caliper has associated with it two brake pad spring elements which have a structure and shape which is chiral, that is to say, mirror-image but not superimposable.

Moriya discloses seat of the caliper has associated with it two brake pad spring elements (30) which have a structure and shape which is chiral, that is to say, mirror-image but not superimposable (Figures 1 and 2).

It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the disc brake assembly of the Fujimori as modified by Nolan and Melinat to make the each seat of the caliper has associated with it two brake pad spring elements which have a structure and shape which is chiral, that is to say, mirror-image but not superimposable as taught by Moriya in order to provide an additional force to press the brake pad assembly in a rotating direction of the disc.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The reference Flaherty et al. (US Patent 3,638,765) discloses Disc Brake with Noise Arrester with similar brake pad feature.

The reference Miyata (US Pub. No.: 2002/0029942 A1) discloses Floating Caliper Type Disc Brake with similar spring element feature.

The reference Jean-Claude Girauldon (US Patent 3,616,878) discloses Antirattle system for Disc Brake with similar brake pad feature.

The reference Johannesen (US Patent 3,977,499) discloses Disc Brake Shoe Anti-Rattle Clip with similar spring element features.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAN AUNG whose telephone number is (571)270-5792. The examiner can normally be reached on Mon-to- Fri 7:30 am- to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on 571-272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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